

Accepted Manuscript

Review

Solid-state anaerobic digestion of lignocellulosic biomass: Recent progress and perspectives

Xumeng Ge, Fuqing Xu, Yebo Li

PII: S0960-8524(16)30026-8

DOI: <http://dx.doi.org/10.1016/j.biortech.2016.01.050>

Reference: BITE 15961

To appear in: *Bioresource Technology*

Received Date: 20 November 2015

Revised Date: 10 January 2016

Accepted Date: 12 January 2016

Please cite this article as: Ge, X., Xu, F., Li, Y., Solid-state anaerobic digestion of lignocellulosic biomass: Recent progress and perspectives, *Bioresource Technology* (2016), doi: <http://dx.doi.org/10.1016/j.biortech.2016.01.050>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



1 **Solid-state anaerobic digestion of lignocellulosic biomass: Recent progress and**
2 **perspectives**

3 Xumeng Ge, Fuqing Xu, Yebo Li*

4 Department of Food, Agricultural and Biological Engineering, The Ohio State University/Ohio
5 Agricultural Research and Development Center, 1680 Madison Ave., Wooster, OH 44691-4096,
6 USA

7 * Corresponding author. Phone: +1 330 263 3855. E-mail: li.851@osu.edu

8
9 **Abstract**

10 Solid-state anaerobic digestion (SS-AD) has gained popularity in the past decade as an
11 environmentally friendly and cost-effective technology for extracting energy from various types
12 of lignocellulosic biomass. According to data of biomass and methane yields of lignocellulosic
13 feedstocks, crop residues have the highest methane production potential in the U.S., followed by
14 the organic fraction of municipal solid waste (OFMSW), forestry waste, and energy crops.
15 Methane yield and process stability of SS-AD can be improved by different strategies, such as
16 co-digestion with other organic wastes, pretreatment of lignocellulosic biomass, and optimization
17 of operating parameters. Different models for SS-AD have been developed, and insights into SS-
18 AD processes have been obtained via microbial community analysis, microscope imaging, and
19 tracer techniques. Future research and development in SS-AD, including feedstock identification
20 and co-digestion, feedstock storage and pretreatment, SS-AD reactor development, digestate
21 treatment, and value-added production, were recommended.

22 *Keywords:* Solid-state anaerobic digestion; Lignocellulosic biomass; Waste management;
23 Methane; Biogas production

Download English Version:

<https://daneshyari.com/en/article/679251>

Download Persian Version:

<https://daneshyari.com/article/679251>

[Daneshyari.com](https://daneshyari.com)